8.9 Agriculture and Soils

8.9.1 Site Setting

GWF Energy LLC proposes to build and operate the Tracy Peaker Project (TPP), a nominal 169-megawatt (MW) simple-cycle power plant, on a nine-acre, fenced site within a 40-acre parcel in an unincorporated portion of San Joaquin County. The site is located immediately southwest of Tracy, California, and approximately 20 miles southwest of Stockton, California. The TPP would consist of the power plant, an onsite 230-kilovolt (kV) switchyard, an approximately five-mile, 230-kV electric transmission line, an approximately 1,470-foot water supply pipeline (as measured from the fence line), an onsite natural gas supply interconnection, and improvements to an existing dirt access road approximately one mile in length. An approximately 5.2-acre area west of the plant fence line and within the 40-acre parcel would be used for construction laydown and parking. Figure 2-1 shows the regional location of the GWF site. Figure 2-2 shows the immediate site location of the GWF project, including the location of the proposed generating facility and the proposed transmission, water supply, and access routes. A total of approximately 27 acres would be affected by the TPP. Approximately 0.7 acres would be disturbed due to water supply pipeline construction, and approximately 12 acres along the length of the proposed transmission route would be disturbed due to construction; only about 9 acres would be permanently disturbed.

8.9.2 Soil Types and Agricultural Lands Affected and Potential Impacts

The TPP would affect soil in the vicinity of the project site. Soil resource information was obtained from a soil survey of San Joaquin County published by the U.S. Department of Agriculture, Soil Conservation Service (McElhiney, 1992). The soil types surrounding the TPP site are shown on Figure 8.9-1. Soil types are identified by project component in Table 8.9-1. The characteristics of the soil types in the immediate vicinity of the TPP and its components are provided in Table 8.9-2. Potential impacts to these soil types are discussed in the "Comments" column of Table 8.9-2.

8.9.2.1 TPP Site and Construction Laydown Area

The TPP site is located on agricultural land. Capay clay and Stomar clay loam cover the entire site (McElhiney, 1992) (see Figure 8.9-1). The Capay clay soil type occurs in interfan basins and is typically used for irrigated crops or orchards. The Stomar clay loam occurs on alluvial fans and is typically used for irrigated crops or orchards. Both of the soil types can be considered prime farmland, if irrigated (McElhiney, 1992).

The Storie Index provides a numerical expression of the relative suitability of a soil for general intensive farming, based on the characteristics of the soil profile and the surface. Based on the numerical rating obtained from this index, soils are placed in one of six grades, ranging from Grade 1 (soil that is best suited for intensive farming) to Grade 6 (soil that is unsuitable for farming). Capay clay is only fairly well suited to farming and is limited in its agricultural potential. Stomar clay loam is well suited to farming (see Table 8.9-3). The TPP site and the construction laydown area are both located on land currently being used for agricultural purposes.

The U.S. Department of Agriculture, Soil Conservation Service developed categorical definitions of important farmlands for land inventory purposes. Important farmlands provide the best opportunity for agricultural production. Land designated as “Prime Farmland” or “Farmland of Statewide Importance” has a good combination of physical and chemical features for the production of agricultural crops. Figure 8.9-2 shows the various classifications of agricultural farmlands in the immediate vicinity of the TPP site. The TPP site and the construction laydown area are located on potential Prime Farmland.

During construction at the TPP site, approximately nine acres of surface soils would be excavated. Excavation of this site would alter the physical and biological characteristics of the native soil in this area. The Capay clay and Stomar clay loam and some underlying alluvium would be compacted as fill to support structures for the TPP. The compaction would increase the density of the soils and reduce their porosity and already low permeability. Both soil types also have the potential for shrinking and swelling. Buildings and roads should be designed to offset the effects of shrinking and swelling. During the development of the construction laydown area and before compacting and grading at the TPP site, the excavated soil would have an increased susceptibility to erosion. The soil loss potential from wind or water erosion was not calculated, because the construction activity would employ mitigation and sedimentation/erosion controls. Because excavation of the soil can expose material susceptible to wind erosion, revegetation or the use of a synthetic mat covering may be necessary following disturbance. In addition, both soil types have low strengths. Buildings and roads should be designed to offset the limited ability of the soils to support loads. In addition, steel and concrete used for construction should be coated to prevent corrosion before contact with the soil.

8.9.2.2 Williamson Act Consideration

The Williamson Act is a state land use policy enacted to preserve open space and agricultural land. Under the act, property taxes are based on the greater value of the land, as represented by commercial or residential use, which discourages premature urbanization and keeps landowners from having to develop their property. The Williamson Act is implemented by creating a voluntary contract with property owners that restricts land use for 10 years, with an automatic annual renewal. The proposed TPP site is located on land that is under Williamson Act contract; the 40-acre parcel is currently being used for agricultural production. Notice of nonrenewal of the contract for the subject acreage was filed in March 1992, and the Williamson contract will expire in March 2002, three months prior to TPP commercial operation. The construction of the TPP would remove a nine-acre portion of the 40-acre parcel from agricultural production.

However, the applicant believes that the County of San Joaquin could be able to make a finding that the 9-acre TPP site and the required linear facilities would be within the principles of agricultural compatibility articulated in Government Code Section 51238.1.

Government Code Section 51238 specifically designates construction of electric facilities as compatible uses within Williamson Act preserves. Additionally, the TPP itself will be limited to 9 acres within a 40-acre parcel. Linear facilities on the parcel and on adjacent parcels will either be buried or will be above ground and will not interfere with long-term agricultural productivity.

Further, since cancellation of the Williamson Act contract was noticed over 9 ½ years prior, and since that contract is scheduled to expire 3 months prior to the operation of the TPP, the long-term agricultural productivity of the parcel is not impacted by the operation of TPP. Rather, if there is an impact at all, it would be due to the prior expiration of the Williamson Act contract. Finally, the 170 megawatts (approximately) of new peaking power made available by the TPP provide a benefit to commercial agriculture on the remaining acreage of the parcel, and on neighboring parcels. The current situation of high peak prices and peak shortages of electricity have caused curtailment in irrigation pumping and have threatened viability of commercial agricultural production. The TPP, which will be in operation in Summer 2002, and will be part of the solution that will increase the availability of, and reduce the cost of electricity available for agriculture on this and neighboring parcels.

The applicant has discussed the situation relating to the parcel status, project impacts, and potential compatibility determination with the County of San Joaquin Planning Department and the State Department of Conservation, Division of Land Resources Preservation (Olivas 2001; Sullivan 2001). Based upon these conversations, the applicant believes the County will make a finding of compatibility and such a finding will not be objected to by the Department of Conservation.

8.9.2.3 Proposed Transmission Route

Construction of the proposed transmission line would temporarily disturb approximately 12 acres along its route. Permanent disturbance due to the construction of new poles for the transmission line is expected to be less than 0.1 acre. The proposed transmission route is located on agricultural lands. Along the proposed route, nine types of soil could be encountered. The soils are moderately deep to very deep and have slow to moderately slow permeability. All soils are at least slightly susceptible to erosion by water; none of the soils are susceptible to erosion by wind. During construction of the transmission route, the native soil in the area could be disturbed by construction activities, which could result in an increased susceptibility to erosion. The soil loss potential from water erosion was not calculated, because the construction activity would employ mitigation and sedimentation/erosion controls. Because excavation of the soil can expose material susceptible to water erosion, revegetation or the use of a synthetic mat covering may be necessary following disturbance. In addition, many of the soils that could be disturbed by the proposed transmission route have a high shrink-swell potential. Structures and foundations should be properly designed to prevent structural damage from the shrinking and swelling of soil. Diverting runoff from structures also helps prevent the shrinking and swelling of soils.

When they are irrigated, these soils are considered prime farmland. In addition, some of the soils are well suited or fairly well suited to agricultural use (see Table 8.9-3 for the agricultural potential associated with each soil type). However, the new 2.8-mile section of the TPP Generator Tie-line would run adjacent to the existing overhead transmission lines and would require an extension at the PG&E right-of-way by 75 feet. The new transmission line would be installed on single steel poles (see Section 6.0). In addition, only temporary disturbances are expected along the 2.1-mile-long section of transmission line that would require a reconductoring connection point on the Tesla-Wesley line into the Tesla Substation. No permanent structures would be built along this stretch of the transmission line. Therefore, only one acre of land or less would be permanently disturbed and converted from agricultural production due to the proposed transmission route.

Figure 8.9-2 shows the various classifications of agricultural farmlands in the immediate vicinity of the proposed transmission route. The proposed transmission route crosses lands mainly designated as grazing land and crosses a few areas designated as Farmland of Local Importance and Prime Farmland.

The proposed transmission route would traverse grazing lands under active use and under Williamson Act contract (San Joaquin County Assessor, 2001). However, the impact of the proposed transmission line would be minimal, because permanent impacts would be limited to approximately 17–23 new poles, which would be installed parallel to an existing corridor of three transmission lines, as described in detail below. As a result, the conversion of land from agricultural production due to the proposed transmission route would be minimal, less than 0.1 acre, other than potential temporary conversion during construction.

8.9.2.4 Proposed Water Line

A proposed water supply pipeline, approximately 1,470 feet in length, would traverse land under active agricultural production and under Williamson Act contract (San Joaquin County Assessor, 2001). However, the impact of the water supply pipeline would be minimal, because the pipeline would follow the property boundary. As a result, the conversion of land from agricultural production due to the proposed water supply pipeline would be minimal, other than potential temporary conversion during construction.

8.9.2.5 Summary of Effects

The TPP site is designated as Prime Farmland and located on land under a Williamson Act contract. The proposed transmission route crossing of lands under Williamson Act contract is a compatible use under Government Code 51238. Although lands within one-quarter mile of the proposed transmission route and within 500 feet of the TPP site are currently used for agricultural production, the TPP would only permanently impact the nine-acre plant site and approximately 0.04 acres along the transmission line. As discussed in Section 8.9.2.2, although the 40-acre site is the subject of a Williamson Act contract due to expire in March 2002, the project is compatible with the provisions of the Williamson Act.

Approximately 15 acres of soil at the TPP site (including the water line) would be disturbed during construction. The soil cover would be removed and compacted for improved support of the peaker plant equipment. Approximately 12 acres of soil along the proposed transmission route could be disturbed during construction. As described above, the new 2.8 miles of the proposed transmission line would run adjacent to an existing overhead transmission line right-of-way. The remaining 2.1 miles would consist of reconductoring of the existing Tesla-Wesley 230-kV transmission line. Impacts from construction of the proposed line to soil and agricultural resources are anticipated to be minimal.

One potential impact of the TPP on soil resources is increased erosion by water or wind, because the natural texture of the soil would be disturbed. However, mitigation measures described below would be implemented.

8.9.3 Mitigation Measures

The following mitigation measures will be implemented to minimize the impacts of the TPP on agriculture and soil resources.

After grading and compacting, the soil excavated from the TPP site will be revegetated or covered with a synthetic mat as necessary to reduce the potential for wind and water erosion. The TPP site will be graded and will have drainage controls. Best management practices (BMPs) will be implemented to control erosion during construction activities. These measures will be described in the stormwater pollution prevention plan (SWPPP) required by the General Storm Water Permit for Construction. The following measures are proposed to reduce construction impacts to minimal levels:

- Describe BMPs to minimize erosion in the SWPPP prior to construction and implement the BMPs during and after construction. Surface soil protection may include the use of mulches, synthetic netting, riprap, or the compacting of native soil.
- Conduct all construction activities in accordance with California's General Industrial Storm Water Permit for Construction, including the erosion control measures in the SWPPP and BMPs to reduce erosion and the transport of increased suspended sediment from construction areas.
- In the construction area, soil will be graded and compacted to ensure that soil is not left in irregular piles that are more susceptible to water and wind erosion. Seeding will be performed in the areas where natural vegetation has been distressed or removed by construction activity.

8.9.4 Growth-Inducing Impacts

The TPP site is located in San Joaquin County. Conversion of agricultural lands to nonagricultural use would be minimal and would be limited to the nine-acre TPP site and an area under 0.1 acre for the transmission poles. Because the TPP would be providing power to the Tesla Substation and not to a specific entity, growth from the additional energy that the TPP would provide is not expected to occur in the vicinity of the TPP.

8.9.5 Cumulative Impacts

Consultation with San Joaquin County indicated that no other applications for energy projects within a six-mile radius of the TPP have been submitted. In any event, the TPP would only convert 9.08 acres of agricultural land and, as mitigated, would have no more than a de minimis impact on soil and agricultural resources. Therefore, the TPP would not result in any cumulatively considerable incremental impacts to soil and agricultural resources.

8.9.6 Applicable Laws, Ordinances, Regulations, and Standards

The laws, ordinances, regulations, and standards (LORS) that apply to agricultural and soil resources at the TPP site are presented in Table 8.9-4. The LORS for federal, state, and local authorities are presented in this section; no industry LORS apply.

Proposed conditions of certification are contained in Appendix K. These conditions are proposed in order to ensure compliance with applicable LORS and/or to reduce potentially significant impacts to less-than-significant levels.

Federal Water Pollution Control Act of 1972 and the Clean Water Act of 1977 (Including 1987 Amendments). These laws establish requirements for discharges from any activity that would affect the beneficial uses of receiving waters. These requirements address the quality of surface water leaving the TPP site during and after construction (see Section 8.4, Water Resources). These regulations are included in this section because of the potential for increased sediment in surface waters resulting from increased erosion. The Central Valley Regional Water Quality Control Board is the administering agency for this authority.

The proposed mitigation measures will protect receiving waters during grading and construction by assuring that discharge limits are not exceeded.

U.S. Department of Agriculture, Natural Resources Conservation Service, *National Engineering Handbook*, Sections 2 and 3 (1983). This guidance provides standards for soil conservation during planning, design, and construction activities.

The TPP will conform with all applicable standards in the *National Engineering Handbook* to ensure that the project will not cause soil loss though accelerated erosion. The proposed mitigation measures outline steps to be taken during grading and construction to limit erosion caused by soil disturbance.

California Public Resources Code Section 25523(a); California Code of Regulations (CCR) Sections 1752, 1752.5, 2300–2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (i). These regulations stipulate the environmental review and siting procedures to be followed in the development of power generation projects larger than 50 megawatts. The California Energy Commission (CEC) is the administering agency for this authority.

The TPP will comply with this authority by submitting all information regarding environmental impacts on soil and agriculture to the CEC and implementing all mitigation measures identified in the final certification.

California Environmental Quality Act (CEQA), California Public Resources Code, Section 21000 et seq.; Guidelines for Implementation of the California Environmental Quality Act (CEQA) of 1970, 14 CCR, Sections 15000–15387, Appendix G. CEQA specifies that: A project will normally have a significant effect on the environment if it will …(q) Cause substantial flooding, erosion, or siltation; …(y) Convert prime agricultural land to nonagricultural use or impair the agricultural productivity of prime agricultural lands.

The proposed mitigation measures identified in Section 8.9.3 outline steps to be implemented during grading and construction to ensure that the TPP would not cause substantial flooding, erosion, or siltation. Only nine acres of agricultural farmland would be permanently taken out of production for the TPP site. It is anticipated that the TPP would not significantly reduce the quality of surrounding agricultural resources or significantly reduce access to soil or agricultural resources.

California Porter-Cologne Water Quality Control Act of 1972; California Water Code, Sections 13260–13269; 23 CCR Chapter 9. The Water Code requires protection of water quality by appropriate design, sizing, and construction of erosion and sediment controls.

The discharge of waste soil into surface waters resulting from land disturbance may require the filing of a report of waste discharge (see Water Code Section 13260a).

The TPP would not discharge waste soils during grading and construction. Mitigation measures discussed in Section 8.9.3, which will be implemented during grading and construction, will protect all surface water courses.

Williamson Act. The TPP site and the proposed transmission route would cross lands under Williamson Act contracts. However, only nine acres of land under the Williamson Act contract would be permanently removed. Portions of the proposed transmission line cross Williamson Act lands; however, the proposed transmission route is located adjacent to the right-of-way associated with the existing transmission lines and is a compatible use under the act. Lands within the right-of-way are currently not being used for production of agricultural crops and will not be used for the production of crops in the near future.

Resource Conservation Element of the San Joaquin County General Plan (1993). The resource conservation element of the San Joaquin County General Plan sets forth policies that address the protection of soil and prime agricultural farmland.

The TPP would not significantly reduce the quality of existing agricultural resources or significantly reduce access to soil or agricultural resources. As described above, the amount of land to be permanently converted to nonagricultural land is only nine acres.

8.9.7 Involved Agencies and Agency Contacts

Agency	Contact/Title	Telephone
California Department of Conservation, Division of Land Resources Protection 801 K Street, MS 13-71 Sacramento, CA 95814-3528	Emily Tesche/ Research Analyst	(916) 323-0868

8.9.8 Permits Required and Permit Schedule

No permits are required for the TPP that are specific to agriculture and soil resources.

8.9.9 References

San Joaquin County Planning Department, 1992. San Joaquin County General Plan. Resource conservation element. Adopted by the San Joaquin County Board of Supervisors, July 29.

McElhiney, Michael A., 1992. *Soil Survey of San Joaquin County, California*. U.S. Department of Agriculture, Soil Conservation Service.

Natural Resources Conservation Service, 1983. *National Engineering Handbook*. U.S. Government Printing Office.

Olivas, Steve, 2001. Personal communication between GWF and Steve Olivas, Director of Land Conservation Division, California Department of Conservation.

Sullivan, Kerry, 2001. Personal communication between GWF and Kerry Sullivan, Deputy Planning Director, San Joaquin County, Department of Planning and Community Development.

Welch, Lawrence E., Huff, Richard C., Dierking, Richard A., Cook, Terry D., Bates, Leland A., Andrews, Wells F., 1966. *Soil Survey of Alameda County, California*. U.S. Department of Agriculture, Soil Conservation Service.

TABLES

Table 8.9-1
Soil Types Identified by Project Component for the TPP Site

Project Component	Approximate Area Disturbed	Map Symbol[a]	Soil Type[a]
TPP site, including water supply line and construction laydown area	15 acres	118	Capay clay, 0 to 2 percent slopes
		252	Stomar clay loam, 0 to 2 percent slopes
Proposed Transmission Route	12 acres	114	Calla-Carbona complex, 8 to 30 percent slopes
		115	Calla-Carbona complex, 30 to 50 percent slopes
		116	Calla-Pleito complex, 8 to 30 percent slopes
		118	Capay clay, 0 to 2 percent slopes
		123	Carbona clay loam, 2 to 8 percent slopes
		252	Stomar clay loam, 0 to 2 percent slopes
		281	Zacharias clay loam, 0 to 2 percent slopes
		CdB	Clear Lake clay, drained, 3 to 7 percent slopes
		LaC	Linne clay loam, 3 to 15 percent slopes

[a] Map symbols and soil types were obtained from *Soil Survey of San Joaquin County, California* (McElhiney, 1992) and *Soil Survey of Alameda County, California* (Welch, et al., 1996).

Table 8.9-2
Characteristics of Soil Types in the Immediate Vicinity of the TPP

Map Unit Name and Description[a]	Slopes Percent[a]	Soil Profile	Erosion Susceptibility: Water	Erosion Susceptibility: Wind	Comments
114 – Calla-Carbona complex, 8 to 30 percent slopes: Strongly sloping to moderately steep soils are on uplifted, dissected terraces. Unit is composed of 45 percent Calla clay loam and 40 percent Carbona clay loam. Very deep and well drained. Formed in alluvium derived from mixed rock sources.	8–30	Calla clay loam: Light brownish gray clay loam: 0 to 18 inches; light yellowish brown and pale brown clay: 18 to 60 inches. Carbona clay loam: Dark gray clay loam: 0 to 6 inches; dark grayish brown clay: 6 to 25 inches; pale brown clay loam: 25 to 36 inches; light yellowish brown clay loam: 36 to 62 inches.	Calla clay loam: severe; Carbona clay loam: moderate to severe.	None	Permeability: Calla clay loam: moderately slow; Carbona clay loam: slow. Calla clay loam is calcareous throughout and Carbona clay loam has a high shrink-swell potential. Properly designing building foundations and diverting runoff away from buildings helps to prevent structural damage caused by shrinking and swelling. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. Any steel used for construction should be coated before contact with the soil to prevent corrosion.
115 – Calla-Carbona complex, 30 to 50 percent slopes: Steep soils on uplifted, dissected terraces. Very deep and well drained. Unit is composed of 50 percent Calla clay loam and 35 percent Carbona clay loam. Very deep and well drained. Formed in alluvium derived from mixed rock sources.	30–50	Calla clay loam: Light brownish gray clay loam: 0 to 18 inches; light yellowish brown and pale brown clay: 18 to 60 inches. Carbona clay loam: Dark gray clay loam: 0 to 6 inches; dark grayish brown clay: 6 to 25 inches; pale brown clay loam: 25 to 36 inches; light yellowish brown clay loam: 36 to 62 inches.	Calla clay loam: severe; Carbona clay loam: severe.	None	Permeability: Calla clay loam: moderately slow; Carbona clay loam: slow. Calla clay loam is calcareous throughout and Carbona clay loam has a high shrink-swell potential. Properly designing building foundations and diverting runoff away from buildings helps to prevent structural damage caused by shrinking and swelling. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. Any steel used for construction should be coated before contact with the soil to prevent corrosion.

Table 8.9-2 (continued)
Characteristics of Soil Types in the Immediate Vicinity of the TPP

Map Unit Name and Description[a]	Slopes Percent[a]	Soil Profile	Erosion Susceptibility		Comments
			Water	Wind	
116 – Calla-Pleito complex, 8 to 30 percent slopes: Strongly sloping to moderately steep soils on uplifted, dissected terraces. Unit is composed of 60 percent Calla clay loam and 25 percent Pleito clay loam. Very deep and well drained. Formed in alluvium derived from mixed rock sources.	8–30	Calla clay loam: Light brownish gray clay loam: 0 to 11 inches; light gray, grayish brown, and light brownish gray clay loam: 11 to 29 inches; white and light gray clay loam: 29 to 60 inches. Pleito clay loam: Grayish brown and dark grayish brown clay loam: 0 to 16 inches; grayish brown and brown clay loam: 16 to 60 inches.	Calla clay loam: moderate to severe; Carbona clay loam: moderate to severe.	None	Permeability of both soils is moderately slow. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. Any steel used for construction should be coated before contact with the soil to prevent corrosion.
118 – Capay clay, 0 to 2 percent slopes: Very deep, moderately well drained. Formed on alluvium derived from mixed rock sources.	0–2	Grayish brown and dark grayish brown clay: 0 to 20 inches; grayish brown, dark grayish brown, dark brown, and pale brown clay: 20 to 60 inches.	Slight	None	Permeability: slow. Shrink-swell capacity is high, strength is low. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. Properly designed buildings and roads should offset the limited ability of the soil to support a load. In addition, properly designing building foundations and diverting runoff away from buildings helps to prevent structural damage caused by shrinking and swelling. Any steel or concrete used for construction should be coated before contact with the soil to prevent corrosion.

Table 8.9-2 (continued)
Characteristics of Soil Types in the Immediate Vicinity of the TPP

Map Unit Name and Description[a]	Slopes Percent[a]	Soil Profile	Erosion Susceptibility: Water	Erosion Susceptibility: Wind	Comments
123 – Carbona clay loam, 2 to 8 percent slopes: Very deep, well drained, gently sloping and moderately sloping soil is on uplifted, dissected terraces. Formed on alluvium derived from mixed rock sources.	2–8	Carbona clay loam: Dark gray clay loam: 0 to 6 inches; dark grayish brown clay: 6 to 25 inches; pale brown clay loam: 25 to 36 inches; light yellowish brown clay loam: 36 to 62 inches.	Slight	None	Permeability: slow. Soil is calcareous between the depths of 25 to 60 inches. Shrink-swell potential is high. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. Properly designing building foundations and diverting runoff away from buildings helps to prevent structural damage caused by shrinking and swelling. Any steel used for construction should be coated before contact with the soil to prevent corrosion.
252 – Stomar clay loam, 0 to 2 percent slopes: Very deep, well drained. Formed on alluvium derived from sedimentary rock sources.	0–2	Grayish brown clay loam: 0 to 17 inches; brown clay loam and clay: 17 to 47 inches; yellowish brown clay loam: 47 to 60 inches.	Slight	None	Permeability: slow. Shrink-swell capacity is high, strength is low. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. Properly designed buildings and roads should offset the limited ability of the soil to support a load. In addition, properly designing building foundations and diverting runoff away from buildings helps to prevent structural damage caused by shrinking and swelling. Any steel used for construction should be coated before contact with the soil to prevent corrosion.
281 – Zacharias clay loam, 0 to 2 percent slopes: Very deep, well drained, nearly level soil is on alluvial fans. Formed in alluvium derived from mixed rock sources.	0–2	Dark grayish brown clay loam: 0 to 19 inches; brown clay loam: 19 to 53 inches; yellowish brown gravelly clay loam: 53 to 60 inches.	Slight	None	Permeability: moderately slow. Low strength. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. Properly designed buildings and roads should offset the limited ability of the soil to support a load. Any steel used for construction should be coated before contact with the soil to prevent corrosion.

Table 8.9-2 (continued)
Characteristics of Soil Types in the Immediate Vicinity of the TPP

Map Unit Name and Description[a]	Slopes Percent[a]	Soil Profile	Erosion Susceptibility		
			Water	Wind	Comments
CdB – Clear Lake clay, drained, 3 to 7 percent slopes: Very deep, moderately well drained on nearly level basins. Formed from fine-textured alluvium from sedimentary rock.	3–7	Dark gray clay: 0 to 36 inches; dark gray clay: 36 to 48 inches; dark grayish brown and light olive brown silty clay: 48 to 65 inches.	Slight	Information not available	Permeability: slow. Shrink-swell capacity is high. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. In addition, properly designing building foundations and diverting runoff away from buildings helps to prevent structural damage caused by shrinking and swelling.
LaC – Linne clay loam, 3 to 15 percent slopes: Shallow to deep, well drained on smooth, gently sloping and rolling uplands. Formed from soft, calcareous, interbedded shale and fine-grained sandstone.	3–15	Dark gray clay loam: 0 to 19 inches; dark gray clay loam: 19 to 36 inches; light gray sandstone: 36 inches and below.	Slight to moderate	Information not available	Permeability: moderately slow. Soil is calcareous. Excavations for roads or building site pads can expose material that may be susceptible to wind and/or water erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of erosion. Any steel used for construction should be coated before contact with the soil to prevent corrosion.

[a] Map symbols, soil types, and descriptions were obtained from *Soil Survey of San Joaquin County, California* (McElhiney, 1992) and *Soil Survey of Alameda County, California* (Welch, et al., 1966).

Table 8.9-3
Agricultural Characteristics of Soil Types in the Immediate Vicinity of the TPP

Map Unit Name and Description[a]	Prime Farmland?[b]	Storie Index Rating[c]	Comments[d]
114 – Calla-Carbona complex, 8 to 30 percent slopes	No	52 (Grade 3)	Fairly well suited to agriculture; limited in agricultural potential.
115 – Calla-Carbona complex, 30 to 50 percent slopes	No	26 (Grade 4)	Not well suited to agriculture.
116 – Calla-Pleito complex, 8 to 30 percent slopes	No	50 (Grade 3)	Fairly well suited to agriculture; limited in agricultural potential.
118 – Capay clay, 0 to 2 percent slopes	Yes, if irrigated	44 (Grade 3)	Fairly well suited to agriculture; limited in agricultural potential.
123 – Carbona clay loam, 2 to 8 percent slopes	Yes, if irrigated	65 (Grade 2)	Well suited to agriculture.
252 – Stomar clay loam, 0 to 2 percent slopes	Yes, if irrigated	68 (Grade 2)	Well suited to agriculture.
281 – Zacharias clay loam, 0 to 2 percent slopes	Yes, if irrigated	81 (Grade 1)	Well suited to agriculture.
CdB – Clear Lake clay, drained 3 to 7 percent slopes	Information not available	46 (Grade 3)	Fairly well suited to agriculture; limited in agricultural potential.
LaC – Linne clay loam, 3 to 15 percent slopes	Information not available	51 (Grade 3)	Fairly well suited to agriculture; limited in agricultural potential.

[a] Map symbols, soil types, and descriptions were obtained from *Soil Survey of San Joaquin County, California* (McElhiney, 1992) and *Soil Survey of Alameda County, California* (Welch, et al., 1966).
[b] McElhiney, 1992; Welch, et al., 1966.
[c] Storie Index Rating and corresponding grade are shown.
[d] Based on the Storie Index Rating.

Table 8.9-4
Laws, Ordinances, Regulations, and Standards for Agricultural and Soil Resources

Jurisdiction	Authority	Administering Agency	Compliance
Federal	Federal Water Pollution Control Act of 1972; Clean Water Act of 1977 (including 1987 amendments)	RWQCB – Central Valley Region under State Water Resources Control Board	Compliance with this authority is discussed in Sections 8.9.3 and 8.9.4.
	Soil Conservation Service (1983), *National Engineering Handbook*, Sections 2 and 3	Natural Resources Conservation Service	Compliance with this authority is discussed in Sections 8.9.3 and 8.9.4.
State	California Public Resources Code § 25523(a); CCR §§ 1752, 1752.5, 2300–2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (i)	CEC	Compliance with this authority is discussed in Section 8.9.4.
	Guidelines for Implementation of CEQA, Appendix G; 14 CCR §§ 15000–15387	CEC	Compliance with this authority is discussed in Sections 8.9.2 and 8.9.4.
	Porter-Cologne Water Quality Control Act of 1972; California Water Code §§ 13260–13269; 23 CCR Chapter 9	CEC and the Central Valley RWQCB under the State Water Resources Control Board	Compliance with this authority is discussed in Section 8.9.4.
	Williamson Act	California Department of Conservation, Office of Land Conservation	Compliance with this authority is discussed in Section 8.9.4.
Local	San Joaquin County General Plan – Resources Element, 1993.	San Joaquin County	Compliance with this authority is discussed in Sections 8.9.3 and 8.9.4.

CCR = California Code of Regulations
CEC = California Energy Commission
CEQA = California Environmental Quality Act
RWQCB = Regional Water Quality Control Board

FIGURES

Figure 8.9-1

Figure 8.9-2